

KEY BY LEAF DESCRIPTION FOLLOWED BY FLOWER DESCRIPTION PLANT ID KEY (TO FAMILY AND SOMETIMES SPECIES)

Key created by Alicia Lafever
Arches National Park

EVERGREEN TREES

1. Leaves opposite or in whorls, evergreen scale-like leaves –
Cupressaceae (Cypress)
2. Leaves spirally arranged, needles in groups of 2 – **Pinaceae (Pine)**

EVERGREEN SHRUBS

1. Leaves are reduced to small triangular teeth at joints, green jointed stems, shrublike – **Ephedraceae (Jointfir)**

DECIDUOUS TREES

1. Leaves opposite
 - A. Leaves simple
 - i. Flowers with no petals, 4 yellow to whitish lobed sepals –
Oleaceae (Olive)
 - ii. Flowers with 5 united white petals and 5 united sepals –
Bignoniaceae (Catalpa)
 - B. Leaves compound
 - i. No petals, 4 -5 greenish, yellow sepals –
Aceraceae (Maple) – Boxelder (*Acer negundo*)
2. Leaves alternate
 - A. Leaves scale-like, 5 fragrant white to lavender petals, 5 sepals, flowers borne in elongated clusters – **Tamaricaceae (Tamarisk)**
 - B. Leaves simple
 - i. Flowers with 0 petals –
 - a. Flowers with no petals, shrublike, 2 to 8 greenish, yellow sepals – **Fagaceae (Beech)** – (also listed under shrubs)
 - b. Flowers with no petals, borne in axillary clusters, yellow or yellow-green sepals (generally 4) – **Elaeagnaceae (Oleaster)**
 - c. Flowers with 0 petals; 4-8 green sepals; flowers borne in clusters - **Ulmaceae (Elm)**
 - ii. Flowers with no petals, 0-4 sepals, stamens 1 to many; borne in catkins
 - a. Male (staminate) flowers and female (pistillate) flowers on separate trees. Borne in catkins. No sepals, greenish, yellow – **Salicaceae (Willow)**

- b. Male (staminate) flowers and female (pistillate) flowers on the same tree. Borne in catkins. Staminate flowers have 0-4 sepals, pistillate flowers have no sepals. Greenish, yellow – **Betulaceae (Birch)**
- c. Male (staminate) flowers and female (pistillate) flowers on the same tree. Borne in catkins. No petals, 4 sepals, 4 stamens, 1 pistil – **Moraceae (Mulberry)** – *Morus alba*
- d. Male (staminate) flowers and female (pistillate) flowers on different trees. Borne in catkins. No petals, 4 sepals, 4 stamens, 1 pistil – **Moraceae (Mulberry)** – *Morus rubra*
- B. Leaves compound, 5 white or pale pink petals, 5 sepals – **Fabaceae (Pea)** – *Robinia pseudoacacia*

SHRUBS

- 1. Leaves opposite
 - A. Leaves simple
 - i. Flowers with 0 petals –
 - a. Yellow flowers with no petals, 4 yellow sepals – **Rosaceae (Rose)**– *Coleogyne ramosissima* (others in shrubs -alternate, simple, 0 petals; shrubs – alternate, simple, 5 petals; and shrubs – alternate, compound, 5 petals)
 - b. Plants parasitic on branches of trees and shrubs; without chlorophyll; fragile-jointed with swollen jointed nodes; leathery (often scale-like) leaves; flowers with 0 petals; 2-5 sepals; staminate and pistillate flowers - **Viscaceae (Mistletoe)**
 - ii. Flowers with 4 distinct petals, 4 sepals –
 - a. 4 distinct small white petals in terminal cymes, 4 very small sepals. Not commonly seen. - **Cornaceae (Dogwood)**: *Cornus sericea* var. *sericea*
 - b. Flowers with 4 white clawed petals, 4 sepals - **Saxifragaceae (Saxifrage)** – *Fendlera rupicola* (others in shrubs-alternate, simple)
 - iii. Flowers with 5 united petals, 5 small sepals –
 - a. Leaves oval, flowers pink, tubular and flare open at the mouth; flowers solitary or in pairs – **Caprifoliaceae (Honeysuckle)**
 - b. Leaves narrow, flowers purple – **Lamiaceae (Mint)** – *Poliomintha incana*
- 2. Leaves alternate
 - A. Leaves simple
 - i. Flowers appear to be a single flower, but are composed of several flowers; flowers can be yellow, white, purple, pink or greenish– some **Asteraceae (Sunflower)**
 - ii. Flowers with no petals
 - a. leaves bluish, small, 2-5 green, yellow, or brown sepals –

- Chenopodiaceae (Goosefoot)** (others in subshrubs and herbs)
- b. 3 to 6 petaloid whitish sepals - **Polygonaceae (Buckwheat)**– *Eriogonum bicolor*, *Eriogonum microthecum*, *Eriogonum leptocladon* (others in subshrubs and herbs – alternate, simple and herbs - basal, simple)
- c. 4 yellowish, brownish sepals – **Rosaceae (Rose)** – *Cercocarpus* (others in shrubs -alternate, simple, 5 petals; shrubs – alternate, compound, 5 petals; and shrubs -opposite, simple, 0 petals)
- d. 2 to 8 greenish, yellow sepals – **Fagaceae (Beech)** – also listed under trees
- iii. Flowers with 4-5 petals, 4-5 sepals -
 - a. 4 or 5 whitish green petals, distinct, or absent; 4 or 5 united sepals; flowers grow in clusters in the angle between the leaf and the stem; shrub 3-8 feet tall - **Rhamnaceae (Buckthorn)** *Rhamnus betulifolia*
 - b. Flowers with 5 (4) white petals often smaller than the sepals, 5 sepals, mostly petaloid – **Saxifragaceae (Saxifrage)** - *Ribes inerme* (others in shrubs – opposite, simple)
 - c. 5 petals, 5 sepals, flowers white, cream, yellow, or pink – **Rosaceae (Rose)** – *Amelanchier*, *Holodiscus*, *Petrophytum*, *Physocarpus*, *Purshia* (others in shrubs -alternate, simple, 0 petals; shrubs – alternate, compound, 5 petals; and shrubs - opposite, simple, 0 petals)
 - d. 5 yellow petals, 5 sepals – **Anacardiaceae (Cashew)** – some *Rhus aromatica*
- B. Leaves compound
 - i. Flowers with 0 petals, 5 sepals; yellow – **Fabaceae (Pea)** – *Parryella filifolia*
 - ii. Flowers with 5 yellow petals, 5 sepals – **Anacardiaceae (Cashew)** – *Rhus glabra*, some *Rhus aromatica*, and *Toxicodendron rydbergii* - rarely simple
 - iii. Flowers with 5 pink (rarely white) petals, sepals 5 – **Rosaceae (Rose)** – *Rosa woodsii* (others in shrubs -alternate, simple, 0 petals; shrubs – alternate, simple, 5 petals; and shrubs -opposite, simple, 0 petals)
 - iv. Flowers with 6 yellow petals, usually 6 sepals – **Berberidaceae (Barberry)**

SUBSHRUB

- 1. Leaves whorled
 - A. Leaves simple
 - i. 4 lobed funnellform greenish-yellow petals, 4-8 lobed sepals, minute or lacking - **Rubiaceae (Madder)** – *Galium multiflorum* (others in

- herbs -whorled, simple, 4 petals)
2. Leaves basal
 - A. Leaves simple
 - i. 0 petals, 3 to 6 petaloid whitish sepals, woolly leaves – **Polygonaceae (Buckwheat)**– *Eriogonum ovalifolium* (others in shrubs and herbs-alternate, simple and herbs-basal, simple)
 3. Leaves opposite
 - A. Leaves simple
 - i. Flowers with 5 petals, 5 sepals
 - a. 5 white to cream tubular petals, 5 sepals – some **Polemoniaceae (Phlox)** – *Leptodactylon watsonii* (others in herbs, opposite, simple: *Phlox*; and herbs, alternate, simple: *Gilia*)
 4. Leaves alternate
 - A. Leaves simple
 - i. Yellow flowers appear to be a single flower, but are composed of several flowers – **Asteraceae (Sunflower)** - some *Gutierrezia* (others in shrubs), some *Haplopappus* (others in herbs), some *Perityle* (others in herbs), some *Xylorhiza* (others in herbs)
 - ii. Flowers with no petals
 - a. leaves bluish, small, 2-5 green, yellow, or brown sepals – **Chenopodiaceae (Goosefoot)** (others in shrubs and herbs)
 - b. 0 petals, 3 to 6 petaloid whitish sepals – **Polygonaceae (Buckwheat)**– *Eriogonum jonesii* (others in shrubs, subshrubs, basal, simple) and herbs-alternate, simple and herbs-basal, simple)
 - iii. Flowers with 3 distinct petals, (the upper 2 pink or pink purple petals usually free, the lower one forming a yellow keel and often fringed, the petals are usually joined to the stamens; 5 distinct sepals, the 2 inner ones larger and often petaloid (the 3 outer sepals are usually green and the other inner ones are petal-like), flowers in racemes, several-flowered; milky stems; thorny – **Polygalaceae (Milkwort)** – *Polygala subspinosa*
 - iv. Flowers with 5 petals, 5 sepals –
 - a. 5 petals, 5 sepals, Flowers small, typically pink, tubular united petals, leaves appear clustered – some **Boraginaceae (Borage)**: *Tiquilia* – (others in herbs)

CACTUS

1. No leaves; spines, numerous petals, sepals and stamens; showy; red, pink, purple, or yellow – **Cactaceae (Cactus)**

SPOROPHYTES (Spore-bearing)

1. Stems typically hollow, jointed, ribbed longitudinally; leaves whorled, small, scalelike, microphyllous – **Equisetaceae (Horsetail)**
2. Plants with scaly or hairy, creeping rhizomes; leaves coiled in the bud

forming fiddleheads, leaves simple or compound, often hairy or scaly -
Polypodiaceae (Fern)

PARASITIC HERBS LACKING CHLOROPHYLL

1. Fleshy purplish, brownish, or yellowish white stems, leaves alternate, reduced and scalelike, 5 lobed united tubular purplish, reddish, or yellowish petals with an upper and lower lip, 5 lobed united sepals –
Orobanchaceae (Broomrape)

GRASSES AND GRASS-LIKE HERBS (SOME OF THE MONOCOTS)

1. Leaves alternate, simple, 2-ranked, stems round, often with hollow internodes, swollen nodes; flowers individually small and inconspicuous; no petals, no sepals, typically 3 stamens (rarely 2 or 6); each flower has 2 bracts forming a spikelet – **Poaceae (Grass)**
2. Leaves simple, linear, sometimes reduced to bladeless sheaths, stems can have edges (*Scirpus* has rounded stems); petals and sepals lacking or reduced to bristles; the spike of reduced flowers forms a spikelet;
grows in wet or moist soil – **Cyperaceae (Sedge)**
3. Stems not jointed; leaves sheathing, alternate or all basal; flowers with 3 petals, 3 sepals, membranous, greenish or brownish; stamens 6 (rarely 3), 1 pistil – **Juncaceae (Rush)**
4. leaves mainly basal, linear, sheathing at the base; flowers terminal spike, 3 greenish petals, 3 greenish or purplish sepals, the sepals and petals not well differentiated; perianth of 3 + 3 tepals; stamens commonly 6, 1 pistil; *Triglochin maritima* - perianth greenish-yellow – **Juncaginaceae (Arrowgrass)**
5. leaves alternate, long, linear, flat, sheathing; flowers densely crowded in terminal spikelike inflorescences; perianth lacking (0 petals, 0 sepals), 2-5 stamens; unisexual, pistillate and staminate spikes look like a hot-dog-on-a-stick; fruits: achene or nutlet; semiaquatic or aquatic -**Typhaceae (Cattail)**

HERBS

1. Leaves whorled
 - A. Leaves simple
 - i. 4 lobed white to green petals marked with green dots, flowers solitary or in cymes, 4 lobed sepals, leaves in whorls of 4 – some **Gentianaceae (Gentian)** – *Swertia albomarginata*; (*Centaurium* in herbs, opposite, simple, 4 or 5 petals, 4 or 5 sepals)
 - ii. 4 lobed funnelform greenish-white or cream petals, 4-8 lobed sepals, minute or lacking - **Rubiaceae (Madder)** – *Galium triflorum* (others in subshrubs -whorled, simple, 4 petals)
 - iii. 5 to numerous (1/8" wide) pale greenish/white tubular partly united petals borne in clusters, 5 parted sepals, 5 stamens, reddish stems - **Apocynaceae (Dogbane)** - *Apocynum cannabinum*

2. Leaves basal
 - A. Leaves simple, parallel veined, monocot
 - i. Flowers with 3 to numerous petals, 3 sepals
 - a. 3 large white petals, 3 white or green sepals; petals in multiples on stalk with flowers oriented in a downward direction – **Agavaceae (Agave)**
 - b. Flowers with 3 to 8 small to medium white, pink, or purple petals oriented in an upward or outward direction, 3 sepals (commonly petaloid), small to medium white or pink flowers – **Liliaceae (Lily)**
 - B. Leaves simple, primarily basal in a rosette
 - i. Flowers appear to be a single flower, but are composed of several flowers; flowers can be yellow, white, purple, pink or greenish – some **Asteraceae (Sunflower)**
 - ii. Flowers with 0 petals, 3 to 6 petaloid whitish sepals - **Polygonaceae (Buckwheat)**– *Eriogonum gordonii*, *Eriogonum inflatum*, *Eriogonum wetherillii* (others in shrubs, subshrubs, and herbs-alternate, simple)
 - iii. Flowers with 2 to 5 petals, 4 or 5 sepals
 - a. Flowers with 2 to 5 yellow petals, 5 green sepals, leaves basal and alternate – **Ranunculaceae – Buttercup** – *Ranunculus testiculatus*
 - b. Flowers with 4 united tiny white petals, 4 united tubular sepals - **Plantaginaceae (Plantain)**
 - c. Flowers with 5 united yellow lobed petals (upper pair shorter than the lower 3) , 4 or 5 sepals, at least partially united, leaves basal and alternate – **Scrophulariaceae (Figwort)** – *Verbascum thapsus* – (others in herbs (alternate, simple and opposite, simple)
 - d. Flowers with 5 lobed lavender to pink tubular petals with the corolla tube rimmed in yellow; 5 tubular lobed sepals- **Primulaceae (Primrose)**
 - e. Flowers with 4 white small to medium petals (not papery), 4 sepals, leaves basal and alternate – **Brassicaceae (Mustard)** – *Draba cuneifolia*
 - iv. Flowers with 5 or more yellow petals, 5 sepals, leaves basal and alternate – **Ranunculaceae – Buttercup** - *Ranunculus cymbalaria*
 - C. Leaves compound
 - i. Flowers with 4 petals, 2 sepals
 - a. Yellow flowers with 4 petals, the 2 outer ones spreading at the apex, the 2 inner ones united– **Fumariaceae (Bleedingheart)**
 - ii. Flowers with 5 petals, 0-5 sepals, leaves basal
 - a. Pinkish, purple, leaves basal and opposite – **Geraniaceae (Geranium)** (also listed in herbs- leaves opposite, compound)
 - b. flowers with 5 petals; 5 sepals or lacking; petals can be yellow, white,

- or purple; petals and sepals are distinct; individual flowers are small and grouped in compound umbels; leaves basal (can have a few leaves alternate) and compound – **Apiaceae (Carrot)**
- c. White or cream (less commonly pink or blue tinged) petals with spurs colored like the sepals, leaves basal and alternate – **Ranunculaceae – Buttercup** - *Aquilegia micrantha*
3. Leaves opposite
- A. Leaves simple
- i. Yellow flowers appear to be a single flower, but are composed of several flowers – **Asteraceae (Sunflower)** – *Flaveria*, *Thelesperma*
- ii. Flowers with no petals
- a. Flowers with 4-5 white, pink, or purple united tubular petaloid sepals – **Nyctaginaceae (Four O’Clock)**
- b. female (pistillate) flowers and male (staminate) flowers, 0 petals; 0 sepals; green, brown, white, or yellow - **Euphorbiaceae (Spurge)** – *Euphorbia fendleri* (other Euphorbiaceae in herbs, alternate, simple, no petals)
- iii. Flowers with 4 or 5 united petals, 4 or 5 sepals
- a. 4 or 5 united lobed white to pink or rose petals in cymes, flowers tubular expanding at end, 4 or 5 lobed sepals – some **Gentianaceae (Gentian)** – *Centaurium*; (*Swertia albomargina* in herbs, whorled, simple, 4 petals, 4 sepals)
- iv. Flowers with 5 united petals, 5 sepals
- a. Flowers yellow, white, green, or pink; petals and sepals are folded down; 5 erect, colored corona hoods on top – **Asclepiadaceae (Milkweed)**
- b. Flowers blue, purple, or white – **Lamiaceae (Mint)**–*Hedeoma drummondii*, *Marrubium vulgare*
- c. Flowers with 5 united tubular white (or less often bluish or pink) petals; 5 lobed sepals, flowers in cymes - some **Polemoniaceae (Phlox)** – *Phlox austromontana*; (other members of this family in herbs, alternate, simple: *Gilia*; and subshrub, opposite, simple: *Leptodactylon watsonii*)
- d. Flowers red, yellow, or blue, united petals, 5 sepals, at least partially united – **Scrophulariaceae (Figwort)** – *Mimulus*, *Penstemon* (others in herbs (basal, simple and alternate, simple)
- e. Flowers pale blue to purple, borne in long dense spikes; 5 lobed united tubular petals, regular or slightly 2-lipped; 5 toothed sepals, usually tubular - **Verbenaceae (Vervain)** - *Verbena bracteata*
- v. Flowers with 5 to numerous petals, 5 sepals
- a. 5 to numerous small (1/8” wide) pale greenish/white tubular partly united petals borne in clusters, 5 parted sepals, 5 stamens, reddish stems – **Apocynaceae (Dogbane)** - *Apocynum cannabinum*
- b. 5 white or pink petals, 5 sepals, 4-10 stamens – **Caryophyllaceae (Pink)**

- B. Leaves compound
 - i. Yellow flowers appear to be a single flower, but are composed of several flowers – **Asteraceae (Sunflower)** – *Bidens frondosa*
 - ii. Flowers with no petals, 4-5 white petaloid sepals – **Ranunculaceae (Buttercup)** – *Clematis ligusticifolia*
 - iii. Flowers with 5 petals, 5 sepals
 - a. Flowers pink – **Geraniaceae (Geranium)** (also listed in herbs – leaves basal, compound)
 - b. Flowers with 5 yellow petals; 5 sepals; plant lying flat on the ground, seeds with spines - **Zygophyllaceae (Caltrop)** - *Tribulus terrestris*
- 4. Leaves alternate
 - A. Leaves simple
 - i. Flowers appear to be a single flower, but are composed of several flowers; flowers can be yellow, white, purple, pink or greenish – some **Asteraceae (Sunflower)**
 - ii. Flowers with no petals
 - a. 5 whitish green sepals which come to a point, lance-shaped leaves – **Santalaceae (Sandalwood)**
 - b. 3 to 6 petaloid white, yellow, green, pink or red sepals, small. Some stems have swollen nodes, alternate/basal -**Polygonaceae (Buckwheat)** – *Eriogonum alatum* (yellowish, green), *Polygonum lapathifolium* (green, white, or pink), *Rumex hymenosepalus* (pink), and *Rumex venosus* (red) (others in shrubs, subshrubs, and herbs-basal, simple)
 - c. leaves bluish, small, 2-5 green, yellow or brown sepals – **Chenopodiaceae (Goosefoot)**
 - d. flowers in axillary clusters; 5 sepals; 3 conspicuous green or red to purple bracts -**Amaranthaceae (Amaranth)** – *Amaranthus blitoides*
 - e. female (pistillate) flowers and male (staminate) flowers, 0 petals; 0-8 sepals; green, brown, white, or yellow - **Euphorbiaceae (Spurge)** – most Euphorbiaceae – (*Euphorbia fendleri* has opposite leaves)
 - iii. Flowers with 3 petals, 3 sepals
 - a. 3 brownish, purple, green or yellowish green petals (free or united, one petal differing from the other two in form, size, and coloration, often forming a lip or spur), 180 degree twist in the flower causing the upper petal to look like the lower one; 3 sepals; sepals either green and sepaloid or colored and petaloid; Leaves often sheathing, parallel veined; monocot – **Orchidaceae (Orchid)**
 - iv. Flowers with 4 petals, 4 sepals
 - a. White, yellow, or pink small to medium petals (not papery) – **Brassicaceae (Mustard)**
 - b. Flowers with 4 white, yellow, or pink large papery clawed petals, 4 sepals, lower leaves can be opposite or basal – **Onagraceae**

(Evening-Primrose)

- v. Flowers with 4 or 5 united tubular red, green, or pink or purple petals; 4 or 5 sepals, at least partially united – **Scrophulariaceae (Figwort)** - *Castilleja*, *Cordylanthus wrightii*, (others in herbs (basal, simple and opposite, simple)
- vi. Flowers with 4-6 yellow petals (generally 5) open only in sunshine, soon close; 2 united sepals - **Portulacaceae (Purslane)** - *Portulaca oleracea*
- vii. Flowers with 5 united petals, 5 sepals
 - a. Flowers small yellow, pink, white, red, or purple. (Sometimes lower leaves opposite in *Cryptantha*) – most **Boraginaceae (Borage)**: *Cryptantha*, *Cynoglossum*, *Heliotropium*, *Lappula*, *Lithospermum* – (*Tiquilia* in subshrubs)
 - b. Flowers purple, blue, or white, not papery; flowers grouped in S-shaped cymes, rarely solitary; the lower leaves sometimes opposite in *Phacelia* – **Hydrophyllaceae (Waterleaf)**
 - c. Flowers with 5 united tubular white to violet or yellowish funnelform petals (some are ill-scented and open in the evening); 5 lobed tubular sepals; large leaves– **Solanaceae (Potato)**
 - d. Flowers with 5 united funnelform white, blue, lavender, purple or rose petals, 5 separate sepals - **Convolvulaceae (Morning Glory)**
 - f. Flowers with 5 united petals, 5 lobed sepals, flowers are funnelform, scarlet, lavender, blue, white, yellow, or pink - some **Polemoniaceae (Phlox)** - *Gilia* (others in herbs, opposite, simple: *Phlox*; and subshrub, opposite, simple: *Leptodactylon watsonii*)
 - g. Flowers with 5 united tubular yellow petals; 4 or 5 sepals, at least partially united – **Scrophulariaceae (Figwort)** – *Linaria dalmatica* (leaves alternate, simple); *Verbascum thapsus* (leaves basal and alternate) (others in herbs -basal, simple and opposite, simple)
- viii. Flowers with 5 distinct petals, 3 to 5 sepals
 - a. Flowers yellow or bluish-purple, flowers papery and short –lived, 5 distinct sepals – **Linaceae (Flax)**
 - b. Flowers with 5 orange or red petals, 3 to 5 sepals – **Malvaceae (Mallow)**
 - c. 5 bluish-white tube-shaped partly united petals borne in terminal clusters, 5 parted sepals, 5 stamens - **Apocynaceae (Dogbane)** – *Amsonia tomentosa*
 - d. 5 distinct yellow petals, 4-5 sepals, petaloid stamens - **Loasaceae (Stickleaf)** – *Mentzelia albicaulis* (other species at Arches NP have 10 petals)
 - e. Flowers with 5 unequal petals, yellow, purple veined and commonly purple dorsally, the lowermost enlarged and spurred; 5 separate sepals, distinct or nearly so - **Violaceae (Violet)** - *Viola purpurea* var. *venosa*
- ix. Yellow flowers with 5-10 distinct petals, 5 sepals, numerous petaloid stamens - **Loasaceae (Stickleaf)** –*Mentzelia albicaulis*: 5 yellow petals; *Mentzelia multiflora*: 10 yellow petals; the inner 5 somewhat shorter and

narrower; *Mentzelia pterosperma*: 10 petals; *Mentzelia pumila*: 10 petals;

B. Leaves compound

- i. Flowers with 4 petals, 2 to 5 sepals
 - a. Flowers with 2 unlike sets of 2 purple or blue petals, 5 purple petaloid sepals – **Ranunculaceae (Buttercup)** – *Delphinium* (Larkspur)
 - b. Flowers with 4 yellow petals, 2 sepals – **Fumariaceae (Fumitory)**
 - c. Flowers with 4 yellow petals, 4 sepals – **Capparaceae (Caper)**
 - d. Flowers with 4 white, cream or yellow petals, 4 sepals – **Brassicaceae (Mustard)**– some *Descurainia*, and *Nasturtium officinale*
- ii. Flowers with 5 petals, 5 sepals
 - a. 5 blue, purple, pink, white, yellow or inconspicuous petals distinct or lower 2 united, sepals united – **Fabaceae (Pea)** – except *Parryella* and *Robinia*